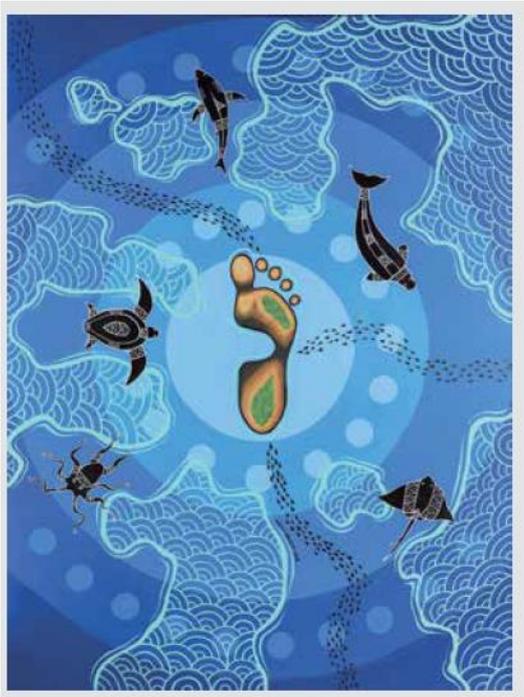


# **Great Barrier Reef outlook report highlights the urgent need to curb carbon emissions and improve water quality**

## **Australian Coral Reef Society comment on the 2019 Great Barrier Reef Outlook Report**

Dr Sarah Hamylton and Catheline Froehlich

Every five years, the Great Barrier Reef Marine Park Authority (GBRMPA) publishes the Outlook Report, which provides an up to date snapshot of the health, pressures and risks to the Great Barrier



Reef (GBR). It is a key source of information for the Australian coral reef science community, as well as those with an interest in the management and custodianship of the GBR. The outlook report was discussed in the Senate last month (21 October 2019), after attracting national and international media attention, and being the subject of many regional community stakeholder meetings since its tabling in Parliament in August.

It took a team of five people two years to wade through more than 1400 references and compile this authoritative, evidence-based and independently peer-reviewed 354-page synthesis of the GBR's current condition (Chapters 1 to 4), trends in use and pressures (Chapters 5-6), management effectiveness and residual risks (Chapters 7 and 9) and the long-term future outlook (Chapter 10) for the GBR's ecosystem and heritage values.

*"Step of Change" by Nicky Bidju Pryor commissioned for the GBRMPA's Reconciliation Action Plan*

### **What the Report found**

The continued trajectory of deterioration in a number of key values, as documented in previous Outlook reports, remains an important message of this report. In 2009, the GBR was considered to be at a crossroads between a positive, well-managed future and a less certain one, but by 2014 it was seen as an icon under pressure. The disheartening message in 2019 is that Australia is now caring for a fundamentally changed and less resilient GBR. The headline-grabbing aspect of this report is that the long-term outlook for the GBR ecosystem is very poor.

As noted by Professors Emma Johnston and Katrin Meissner:

*"As scientists, we are rarely 100 per cent certain about anything, but when we are sure of something it's because there is a huge amount of evidence behind us. And we are sure that the greatest threat to the long term outlook of the Great Barrier Reef is climate change...It is now a question of whether, and how, our ecosystems will adapt to such rapid changes, and whether, and when, our clever choices can slow those changes down."* ([The Reef Report is in and ocean scientists are fearful](#), Sydney Morning Herald, August 30)

Overall, the condition of key habitats has deteriorated from good to poor since 2014, driven by increasing sea temperatures, climatic events and poor water quality. The Outlook Report highlighted the work of Buckley et al. (2017) on the Spanish Mackerel fishery, which has targeted spawning aggregations, leading to decreased catch rates and bag limits over time and thus fishery expansions

further offshore. Fisheries management is improving, but some currently fished species are still experiencing declines and illegal practices remain a concern. Populations of turtles and seabirds have also declined as a result of reduced recruitment. All six species of regional marine turtles are threatened. While climate change remains the greatest threat, other factors, including coastal development and land-based run-off are impacting the regional social, heritage, and economic values associated with these populations.

On a positive note, continued and sustained pest eradication on islands is proving successful. Pest management at Tryon Island (Capricorn Bunker Group) has successfully restored flowering *Pisonia* forest that provide important habitat for nesting birds through the eradication of scale insects and African big-headed ants. The eradication exercise, alongside planting of >3000 *Pisonia* cuttings by the Queensland Parks and Wildlife Service has restored forest canopy and increased numbers of black noddies and wedge-tailed shearwaters through providing nesting habitat. Knowledge on how to control the ants, bolster natural predators and effectively restore *Pisonia* forest was successfully applied at the neighbouring Wilson Island.

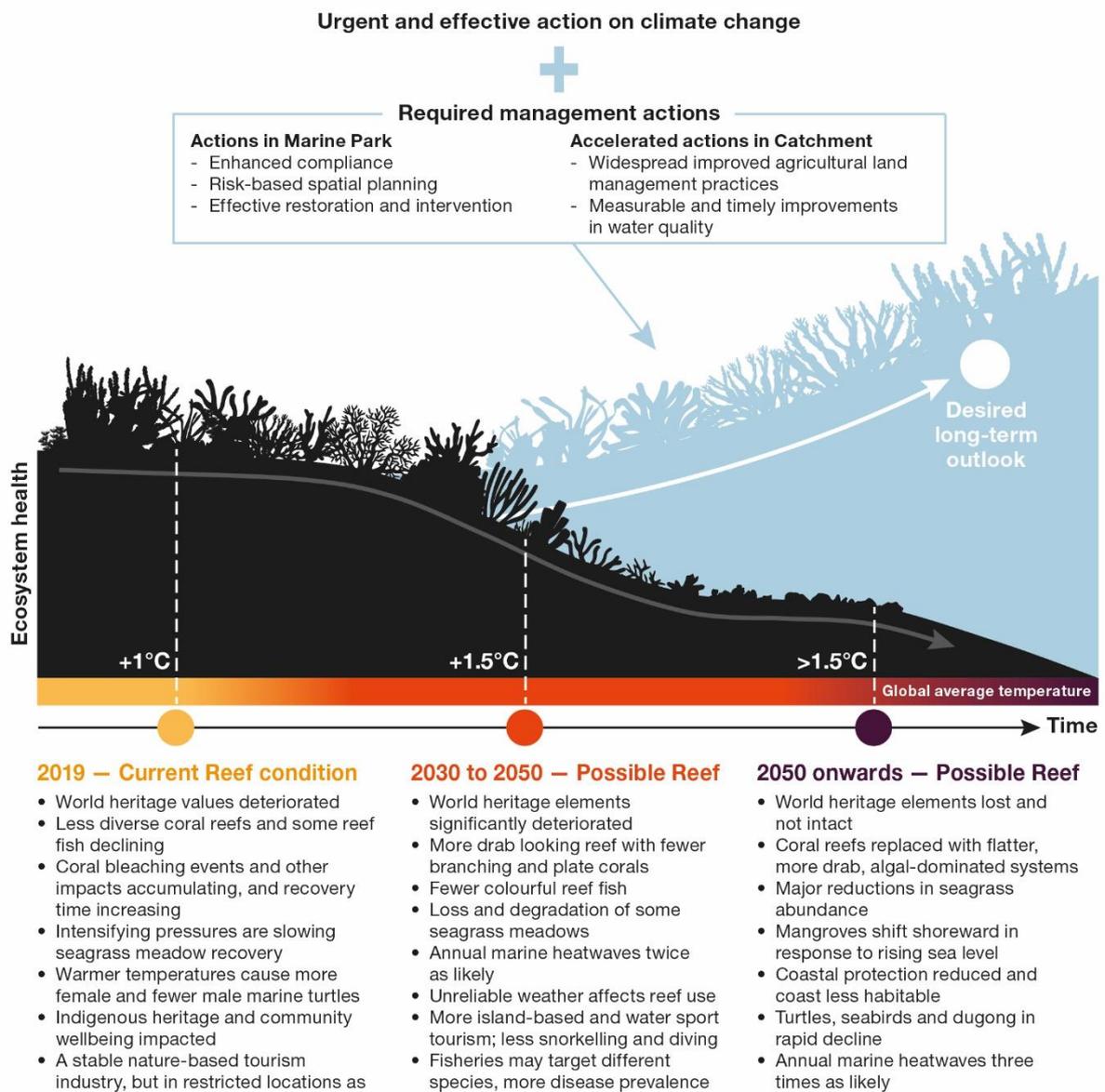
While the value of associated Indigenous heritage (e.g. cultural practices, sacred sites, songlines, structures) has continued to remain in poor condition since previous reports, increased investment in initiatives like the Junior Ranger Programs has encouraged Indigenous youth to explore and engage with Country through a series of activities and educational programs. The program is strengthening the resilience of cultural practices, observances, customs and lore (Chapter 8).

Predictably, climate change emerges as the top risk to the Great Barrier Reef Region's values which manifests as extreme weather patterns, elevated sea surface temperatures, and sea level rise. On page 265 (see below), a diagram neatly illustrates two potential future pathways for the GBR that are contingent on whether risks are adequately mitigated in an adequate timeframe. The business-as-usual trajectory, without the timely mitigation of high-risk threats, indicates the Region may exhibit fewer colourful fish, degraded habitats, more heatwaves, unreliable weather and likely increased prevalence of disease. If this occurs, users of the reef may target previously unexploited species. Thereafter, a less structurally complex and more algal-dominated ecosystem may prevail, with significant shifts in the health of the world heritage site. However, if urgent and effective action is taken to curb emissions and address climate change, in addition to improving water quality and ensuring sustainable use from an ever growing coastal population, an alternative, more positive future pathway may still be within reach for a resilient reef and marine park.

The Outlook Report emphasises the many actions suggested in the Reef 2050 Plan. Just last year, the Reef 2050 Long-Term Sustainability Plan was revised following a mid-term review and highlighted some important actions, including increasing compliance with marine park regulations, risk-based spatial planning and reef restoration, and improving agricultural land management practices in order to improve water quality and reducing the impacts of climate change.

There are inherent difficulties of carrying out such a large-scale assessment and awarding a single grade to reflect the condition of the whole Region. In the future, a more localized approach to grading might better capture the geographic variability within the Region, which covers 346 000 km<sup>2</sup> from Cape York in the north to Lady Elliot Island in the south.

As another hot summer unfolds, following last year's hottest summer on record, and with NOAA's Coral Reef Watch predicting >90 probability of more coral bleaching over the coming months, The Australian Coral Reef Society interprets the central message of the Outlook Report as an urgent call to action: **major threats to the region need to be addressed, with the utmost emphasis on reducing carbon emissions to curb climate change and improvements to water quality.**



**Figure 1 Future pathways for the Great Barrier Reef Region :** The two outlook pathways shown provide examples of what the future might look like depending on whether key risks are adequately mitigated within required timeframes. The pathways are indicative and based on a large body of evidence. Reef condition and social values have already changed and will continue to change. The desired outlook pathway is still possible if global, regional and local mitigation and management actions are accelerated and implemented in time.